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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/563,111

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Shinichi Konno

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EXAMINER

BERNATZ, KEVIN M

ART UNIT

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1794

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/563,111	Applicant(s) KONNO ET AL.	
	Examiner Kevin M. Bernatz	Art Unit 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>1/3/06</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Response to Amendment

1. Preliminary amendments to the claims, filed on January 3, 2008, have been entered in the above-identified application.

Claim Objections

2. Claims 4, 6, 9, 10 and 14 objected to because of the following informalities: the term "A1" should be "Al" (i.e. aluminum). Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

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4. Claims 1, 2, 4 – 7, 9, 11, 13 – 15 and 17 – 19 are rejected under 35

U.S.C. 102(a), (b), and/or (e) as being anticipated by Hayashi et al. (U.S. Patent App. No. 2002/0028353 A1).

Regarding claim 1, Hayashi et al. disclose a powder for an underlayer of a coating-type double-layer magnetic recording medium (*Abstract and Paragraph 0038*), which is a powder composed of acicular or nearly aciculate nonmagnetic iron oxide particles (*Abstract - acicular hematite*), characterized in having an Average major axis length of the particles of 20 – 200 nm (*Abstract and examples*), and specific surface area calculated by BET method of 30 – 100 m²/g (*ibid*), and containing 0.1 – 5 wt% of phosphorous (*Paragraph 0088 and examples*).

Regarding the limitation “soluble phosphorus compound being not greater than 100 ppm based on P”, it has been held that where claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a *prima facie* case of either anticipation or obviousness has been established and the burden of proof is shifted to Applicant to show that prior art products do not necessarily or inherently possess characteristics of claimed products where the rejection is based on inherency under 35 USC 102 or on *prima facie* obviousness under 35 USC 103, jointly or alternatively. Therefore, the *prima facie* case can be rebutted by **evidence** showing that the prior art products do not necessarily possess the characteristics of the claimed product. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). “When the PTO shows a sound basis for believing that the products of the applicant and the prior art are the same, the

applicant has the burden of showing that they are not.” *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990).

In the instant case, Hayashi et al. disclose substantially identical non-magnetic acicular iron oxide particles as used by Applicant, wherein the disclosed particles are put through an *extensive* washing/cleaning process (*Paragraphs 0082 – 0111, 0121 and 0122*) in order to reduce the amount of soluble sodium ions, both on the surface and in the center of the particles (*Paragraphs 0121 – 0122*) to extremely low levels (*< 50 ppm, with many embodiments < 10 ppm*). Specifically, the Examiner points to Table 1, examples 1 and 3, which use P in an amount meeting Applicants’ claimed wt% and have a soluble Na content of *<10 ppm*. Given that the disclosed processing removes soluble sodium to a level well below that reported by Applicants (*see pending claim 2*), the Examiner deems that there is *sound basis* that at least for embodiments 1 and 3 the amount of the soluble phosphorus compounds would necessarily be less than 100 ppm. Applicants are reminded that a single embodiment is a *prima facie* case of anticipation.

Therefore, in addition to the above disclosed limitations, the presently claimed property of “soluble phosphorus compound being not greater than 100 ppm based on P” would have necessarily been present because the similarity between the disclosed and prior art inventions, as well as the extensive washing/cleaning done in Hayashi et al. to reduce the soluble sodium content to *< 10 ppm*.

Regarding claim 2, the Examiner deems that these limitations would necessarily be met for substantially the same reasoning as applied above with the ppm soluble phosphorus compounds.

Regarding claim 4 – 6, 9, 11, 13 and 14, Hayashi et al. disclose Al and/or Si additives meeting Applicants' claimed composition and structural limitations (*Paragraphs 0037, 0054 – 0055 and 0088*).

Regarding claims 7, 15 and 17 – 19, Hayashi et al. disclose magnetic recording media limitations meeting Applicants' claimed limitations (*Abstract and Paragraph 0038*).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1 – 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hayashi et al. as applied above, and further in view of the combined teachings of Kato et al. (U.S. Patent App. No. 2002/0028352 A1) and the IDS reference to Masaki et al. (JP 09-305958 A). See provided JPO Abstract Translation of JP '958 A.

Regarding claims 1, 2, 4 – 7, 9, 11, 13 – 15 and 17 – 19, Hayashi et al. is relied upon as described above. While the Examiner maintains that there is sound basis that at least embodiments 1 and 3 of Hayashi et al. necessarily meet Applicants' claimed ppm of soluble phosphorus compounds limitation, the Examiner acknowledges that Hayashi et al. fail to explicitly measure the amount of the soluble phosphorus compounds.

However, both Kato et al. (*Paragraph 0035*) and Masaki et al. (*JP Abstract*) teach that it is recognized that *all* inorganic soluble impurities in iron oxides should be reduced to as little as possible (< 200 ppm in Kato et al., < 50 ppm and < 150 ppm in Koichi et al.). While Kato et al. talk about inorganic soluble compounds in a *magnetic* acicular particle, the Examiner notes that one of ordinary skill in the art would readily appreciate that a similar benefit would be achieved regardless of whether the iron oxide magnetic particles are controlled to have minimal impurities, or whether the non-magnetic iron oxide lower layer particles are controlled (*see also Koichi et al., which teach controlling the amounts in both the ferromagnetic powders and the non-magnetic powders*).

Therefore, the Examiner deems that it would have been obvious to one having ordinary skill in the art to have determined the optimum value of a results effective variable such as the amount of soluble P compounds through routine experimentation, especially given the teaching in both Kato et al. and Masaki et al. regarding the desire to **minimize** the amount of soluble inorganic compounds/ions in the powders of a magnetic recording medium. *In re Boesch*, 205 USPQ 215 (CCPA 1980); *In re Geisler*, 116 F. 3d 1465, 43 USPQ2d 1362, 1365 (Fed. Cir. 1997); *In re Aller*, 220 F.2d, 454, 456, 105 USPQ 233, 235 (CCPA 1955).

Regarding claims 3, 8, 10, 12 and 16, Kato et al. disclose adding rare earth compounds to the non-magnetic particles in the lower, non-magnetic layer (*i.e. the same layer that the Hayashi et al. particles are used in*) (*Paragraph 0056*). Kato et al. fail to disclose the exact amount to add, but the Examiner deems that it would have been obvious to one having ordinary skill in the art to determine an effective amount of

the rare earth element (including Y) meeting Applicants' claimed limitations by optimizing the results effective variable through routine experimentation. *In re Boesch*, 205 USPQ 215 (CCPA 1980); *In re Geisler*, 116 F. 3d 1465, 43 USPQ2d 1362, 1365 (Fed. Cir. 1997); *In re Aller*, 220 F.2d, 454, 456, 105 USPQ 233, 235 (CCPA 1955).

7. Claims 2, 8, 9, 11 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hayashi et al. as applied above, and further in view of the IDS reference to Nishitani et al. (JP 08-133742 A) and/or the IDS reference to Saito (JP 11-273056 A). See provided JPO Abstract translations of JP '742 A and JP '056 A.

Hayashi et al. is relied upon as described above. While the Examiner maintains that there is sound basis that at least embodiments 1 and 3 of Hayashi et al. necessarily meet Applicants' claimed pH and ppm of soluble sodium and sulfate limitation, the Examiner acknowledges that Hayashi et al. fail to explicitly measure the pH of the powder, or the amount of the soluble sulfate compounds (*the soluble sodium content is met by Hayashi et al. - Abstract and examples*).

However, Nishitani et al. disclose removing Na and sulfate ions in hematite powder with a pH less than 8 (*JPO Abstract*) and Saito discloses making sure that the amount of Na and Ca ions in non-magnetic iron oxide with a pH ≤ 7 are less than 60 ppm, preferably < 40 ppm (*JPO Abstract*).

It would therefore have been obvious to one of ordinary skill in the art at the time of the Applicants' invention to modify the device of Hayashi et al. to insure that the pH and soluble sulfate ions meet Applicants' claimed limitations as taught by both Nishitani

et al. and Saito, since this leads to high purity hematite capable of improving the surface characteristics of the lower non-magnetic layer (*Abstract translations*).

8. Claims 2, 8, 9, 11 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hayashi et al. in view of Kato et al. and Masaki et al. as applied above, and further in view of the IDS reference to Nishitani et al. (JP 08-133742 A) and/or the IDS reference to Saito (JP 11-273056 A). See provided JPO Abstract translations of JP '742 A and JP '056 A.

Hayashi et al., Kato et al. and Masaki et al. are relied upon as described above. While the Examiner maintains that there is sound basis that at least embodiments 1 and 3 of Hayashi et al. necessarily meet Applicants' claimed pH and ppm of soluble sodium and sulfate limitation, the Examiner acknowledges that Hayashi et al. fail to explicitly measure the pH of the powder, or the amount of the soluble sulfate compounds (*the soluble sodium content is met by Hayashi et al. - Abstract and examples*).

However, Nishitani et al. disclose removing Na and sulfate ions in hematite powder with a pH less than 8 (*JPO Abstract*) and Saito discloses making sure that the amount of Na and Ca ions in non-magnetic iron oxide with a pH ≤ 7 are less than 60 ppm, preferably < 40 ppm (*JPO Abstract*). Finally, the Examiner notes that both Kato et al. and Masaki et al. teach the desire to remove *all* inorganic soluble ions/compounds, which would include sulfates.

It would therefore have been obvious to one of ordinary skill in the art at the time of the Applicants' invention to modify the device of Hayashi et al. in view of Kato et al.

and Masaki et al. to insure that the pH and soluble sulfate ions meet Applicants' claimed limitations as taught by both Nishitani et al. and Saito, since this leads to high purity hematite capable of improving the surface characteristics of the lower non-magnetic layer (*Abstract translations*).

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to Applicants' disclosure. Konno et al. (U.S. Patent No. 7,357,980 B2) teach a non-magnetic aciculate iron oxide particle meeting all of the claimed limitations (*col. 6, lines 12 – 35*), but does not qualify as prior art due to Applicants' 371 date antedating the filing date of US '980 B2. No double patenting rejection has been made since the claims of US '980 B2 are deemed sufficiently distinct from the pending claims.

10. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Kevin M. Bernatz whose telephone number is (571) 272-1505. The Examiner can normally be reached on M-F, 8:30 AM - 5:00 PM.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Rena Dye can be reached on (571) 272-3186. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Kevin M Bernatz/
Primary Examiner, Art Unit 1794

November 6, 2008